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MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER MAYO III, WILLIAM H	
			ART UNIT	PAPER NUMBER
			2831	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/790,055

Applicant(s)

SEXTON ET AL.

Examiner

William H. Mayo III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/19/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(e). The provisional application being filed September 15, 2003, as Application No. 60/500,350.

### ***Information Disclosure Statement***

2. The information disclosure statement filed July 19, 2004 has been submitted for consideration by the Office. It has been placed in the application file and the information referred to therein has been considered.

### ***Drawings***

3. The drawings are objected to because Figures 1a-2b, 2e, 2f, and 3a-3w lack the proper cross-hatching which indicates the type of materials, which may be in an invention. Specifically, the cross hatching to indicate the conductive and insulative materials is improper. The applicant should refer to MPEP Section 608.02 for the proper cross-hatching of materials. Correction is required.

### ***Claim Objections***

4. Claim 8 & 26 are objected to because of the following informalities: In claim 8, line 4, insert the terms —at least one—between the terms “said” and “electrifiable “ to

provide proper antecedent basis. In claim 26, line 1, insert the terms –at least one— between the terms “said” and “electrifiable ” to provide proper antecedent basis. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 7-9, 24-27, and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Champeau (Pat Num 5,068,632). Champeau discloses an electrical cable (Figs 1-4) for transmission of microwaves such as for example radar or cable television (Col 1, lines 5-10). Specifically, with respect to claim 1, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), first and second return conductors (5 & 6, respectively), which are respectively formed on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1) such that the at least one electrifiable conductor (1) is at least substantially entrapped by the first and second conductors (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2). With respect to claim 2, Champeau discloses first and second insulating layers (2 & 3) which are formed between the at least one electrifiable conductor (1) and the first and second conductors (5 & 6, respectively, Fig 2). With respect to claim 3,

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Champeau discloses that the at least one electrifiable conductor (1) and the first and second return conductors (5 & 6) are substantially flat conductive layers having a stacked arrangement (Fig 2, Col 2, lines 50-64). With respect to claim 7, Champeau discloses that the first and second insulating layers (3 & 4) contact each other along a longitudinal edge of the electrical wire (Fig 1, Cols 3-4, lines 65-68 & 1-10 respectively). With respect to claim 8, Champeau discloses that the first and second insulating layers (3 & 4) are mechanically treated (formed roundly on the edges) to form a protective edge (4) of the electrical wire (1), wherein the protective edge (4) of the wire (1) is capable of inhibiting any foreign objects from penetrating the electrical wire (1) and contacting the at least one electrifiable conductor (1). With respect to claim 9, Champeau discloses that the cable (Fig 1) may further comprises an outer insulating layer (9, Fig 2) formed on the first and second return conductors (5 & 6, respectively). With respect to claim 24, Champeau discloses an electrical wire (Fig 4) comprising at least one electrifiable conductor (1), a first insulating layer (3 & 4) formed around the at least one electrifiable conductor (1), a return conductors (5 & 6, respectively), which are formed around (top and bottom sides) the first insulating layer (3 & 4), such that the at least one electrifiable conductor (1) is at least substantially entrapped by the return conductor (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2) and a second insulating layer (9) formed around the return conductor (5 & 6, Fig 4). With respect to claim 25, Champeau discloses that the cable (Fig 4) further comprises a grounding conductor (7) formed around the second outer insulating layer (9) and a third insulating layer (8) formed around the grounding conductor (7, Fig 4). With respect to claim 26,

Champeau discloses that the at least one electrifiable conductor (1), the return conductor (5 & 6) have a rectilinear cross sectional geometries and the grounding conductor (7) has a substantially curvilinear shaped cross sectional geometry (Fig 4). With respect to claim 27, Champeau discloses that the at least one electrifiable conductor (1), the return conductor (5 & 6) and the grounding conductor (7) are formed in substantially parallel planes (horizontal parallel planes, Fig 4). With respect to claim 30, Champeau discloses a method of manufacturing an electrical wire (Fig 1) comprising forming at least one electrifiable conductor (1) and forming first and second return conductors (5 & 6) on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1), such that the at least one electrifiable conductor (1) is at least substantially entrapped by the return conductor (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2). With respect to claims 31-32, Champeau discloses the electrical cable (1) of being utilized in an electrical current delivery system or electrical transmission system (Col 1, lines 39-48).

7. Claims 10-16 and 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Oppenberg (Pat Num 5,003,273). Oppenberg discloses a transmission cable (Figs 1-3) comprising signal and power conductors, which minimize crosstalk and are cheaper in cost (Col 2, lines 29-35). With respect to claim 10, Oppenberg discloses an electrical cable (Figs 1-2) comprising at least one electrifiable conductor (301), first and second insulating layers (103 & 105) formed on opposing sides (top and bottom sides) of said at least one electrifiable conductor (301), first and second return conductors (top and bottom 201) formed on said first and second insulating layers (103

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& 105), respectively, such that said at least one electrifiable conductor (301) is at least substantially entrapped by said first and second return conductors (top and bottom 201, Col 3, lines 45-50), third and fourth insulating layers (101 & 107) formed on said first and second return conductors (top and bottom 201), respectively, first and second grounding conductors (303 & 305) formed on said third and fourth insulating layers (101 & 107), respectively; and fifth and sixth insulating layers (top and bottom 108 as shown in Figure 2) formed on said first and second grounding conductors (303 & 305), respectively (Col 3, lines 50-55). With respect to claim 11, Oppenberg discloses that said first and second return conductors (top and bottom 201) are treated by at least one of a mechanical, chemical and thermal treatment (i.e. mechanically grounded) to form a protective longitudinal edge of said electrical wire (Fig 1), wherein said protective edge inhibits a foreign object from penetrating said electrical wire (Fig 1) and contacting said electrifiable conductor (301) without contacting one of said first and second return conductors (top and bottom 201, Col 3, lines 34-38). With respect to claim 12, Oppenberg discloses that the cable (Fig 1) comprises an area between said first and second return conductors (top and bottom 201) that forms a hot zone, wherein said at least one electrifiable conductor (301) is disposed within said hot zone (i.e. between the first and second return conductors; top and bottom 201). With respect to claim 13, Oppenberg discloses that said at least one electrifiable conductor (301) comprises a plurality of electrifiable conductors (301) which are formed in said hot zone (i.e. between the first and second return conductors; top and bottom 201) and comprise a plurality of horizontal segments (Fig 1) across a width of said wire (Fig 1) and a plurality of vertical

segments across a thickness of said wire (all of the signal and return conductors are stacked vertically, Fig 1). With respect to claim 14, Oppenberg discloses that the at least one segment in said plurality of horizontal segments of said electrifiable conductors (301) are used to transmit a communication signals (Col 2, line 50), and wherein at least one segment in said plurality of horizontal segments (stacked vertically 201) of said electrifiable conductors (Fig 1) are used to supply one of AC and DC electrical power (i.e. DC power, see Col 3, lines 1-8). With respect to claim 15, Oppenberg discloses that the communication signal (301) comprises a data communication signal (i.e. circuit board data, Col 2, lines 5-11). With respect to claim 16, Oppenberg discloses that the capacitance (C) formed between said at least one electrifiable conductor (301) and said first and second return conductors (top and bottom 201) is given as  $C = 1.5 * W * L * \epsilon / d$ , where W is the width of the return and electrifiable conductors (301 & 201, respectively), L is the length of the return and electrifiable conductors (201 & 301 respectively),  $\epsilon$  is the dielectric constant for the first and second insulating layers, and d is the distance between each of the return and electrifiable conductors (Col 4, lines 32-33; capacitance = 1.6-3.9 pf/inch). With respect to claim 18, Oppenberg discloses that the cable (Fig 1) is configured wherein an object penetrating an outer surface of said electrical wire (Fig 1) would contacts one of said first and second grounding conductors (303 & 305) and one of said first and second return conductors (top and bottom 201), before contacting said at least one electrifiable conductor (301, i.e. the above stated layers completely surround the conductor 301, Col 3, lines 45-50). With respect to claim 19, Oppenberg discloses that the first and second



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grounding conductors (303 & 305) inhibit power transmission signals and load-generated electrical noise from being emitted from said electrical wire (Fig 1, Col 1, lines 34-38). With respect to claim 20, Oppenberg discloses that the first and second return conductors (top and bottom 201) and said first and second grounding conductors (303 & 305) comprise a rate of heat dissipation which is greater than a rate of heat dissipation for an round conductor, for a given cross-sectional area (i.e. rectangular conductors always give off greater heat dissipation than round conductors). With respect to claim 21, Oppenberg discloses that the electrical wire (Fig 1) comprises a direct current (DC) electrical wire (top and bottom 201) for supplying an electrical current having potential of greater than 0V (to be functional the cable has to supply some type of voltage (greater than 0V) for the circuit board to be operable, Col 3, lines 1-8). With respect to claim 22, Oppenberg discloses that the electrical wire (Fig 1) comprises surface mountable electrical wire (i.e. mounted on a circuit board, Col 1, lines 5-10). With respect to claim 23, Oppenberg discloses that the first and second return conductors (top and bottom 201) each have a thickness TG (5 mils), and said first and second grounding conductors (303 & 305) each have a thickness Tx (10 mils), and said electrifiable conductor (301) has a thickness TH (5 mils), such that a ratio of thicknesses  $R = (TG + Tx)/TH$  is at least 1.00 (i.e.  $5 + 10 = 15/5 = 3$ , Col 4, lines 10-20 & 68 respectively).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 4 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Farquhar et al (Pat Num 5,847,324, herein referred to as Farquhar). Champeau discloses an electrical cable (Figs 1-4) for transmission of microwaves such as for example radar or cable television (Col 1, lines 5-10). Specifically, with respect to claim 4, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), and first and second return conductors (5 & 6, respectively), having a distance (e) between the first and second

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return conductors (5 & 6, Fig 1). With respect to claim 28, Champeau discloses that the electrical cable (Fig 1) has a thickness.

However, Champeau doesn't necessarily disclose  $\frac{1}{2}$  (e) (i.e. distance between the conductor and return conductors is  $\frac{1}{2}(e)$ ) being less than 0.030 inches (claim 4), nor the wire having a thickness of no more than 0.050 inches (claim 28).

Farquhar teaches a high performance cable (Figs 1-2) having high strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18). Specifically, with respect to claim 4, Farquhar teaches a cable (10) which comprising at least one electrifiable conductor (14), and first and second return conductors (top and bottom 22, respectively), having a distance between the first and second return conductors (top and bottom 22, Fig 1), which is the thickness of the insulating layer (18) separating them, wherein the thickness of the insulating layer (18) is 1mil (Col 4, lines 1-2, i.e. 1 mil = .001 inch). With respect to claim 28, Farquhar teaches that the electrical cable (10) has an overall thickness of less than 0.050 inches (Col 3, lines 1-5, (5.8 - 9.8 mils = 0.006-0.01 inches).

With respect to claims 4 & 28, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the electrifiable and return conductor spacing configuration and the overall cable thickness configuration as taught by Farquhar because Farquhar teaches that such configurations a high performance cable (Figs 1-2) having high strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18) and since it has been held that discovering an optimum value of a result

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effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

11. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Parker et al (Pat Num 5,554,825, herein referred to as Parker). Champeau discloses an electrical cable (Figs 1-4) for transmission of microwaves such as for example radar or cable television (Col 1, lines 5-10). Specifically, with respect to claim 5, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), and first and second return conductors (5 & 6, respectively), having a distance (e) between the first and second return conductors (5 & 6, Fig 1).

However, Champeau doesn't necessarily disclose the first and second conductors contacting each other along a longitudinal edge of the wire such that the conductor is completely entrapped by the first and second conductors (claim 5), nor the first and second conductors being treated to form a protective edge of the electrical wire wherein the protective edge of the wire is capable of inhibiting any foreign objects from penetrating the electrical wire and contacting the at least one electrifiable conductor (claim 6).

Parker teaches a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI. (Col 1, lines 25-35). Specifically, Parker discloses a cable (Fig 1) comprising at least one electrifiable conductor (2), being surrounded by a flat flexible shield layer (7), that may comprise a first and second layer (Col 4, lines 44-47), wherein the opposite sides

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of the shield (7) may be superposed (i.e. welded) to each other, thereby completely entrapped by the first and second conductors of the shield layer (7, Fig 1). With respect to claim 6, Parker discloses that the first and second conductors of the shield layer (7) are treated (i.e. superposed) to form a protective edge of the electrical wire (1) wherein the protective edge of the wire (1) is capable of inhibiting any foreign objects from penetrating the electrical wire (1) and contacting the at least one electrifiable conductor (2, i.e. the shield completely surrounds the conductor and therefore protects the conductor (1)).

With respect to claims 5-6, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the return conductor configuration as taught by Parker because Parker teaches that such a configuration provides a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35) and since it has been held that forming in one piece an article which has been formerly been formed in two or more pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

12. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Schreiber et al (Pat Num 4,845,311, herein referred to as Scheiber). Champeau discloses an electrical cable (Figs 1-4) for transmission of microwaves such as for example radar or cable television (Col 1, lines 5-10). Specifically, with respect to claim 29, Champeau discloses an electrical wire (Fig

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1) comprising at least one electrifiable conductor (1), and first and second return conductors (5 & 6, respectively), and a grounding conductor (7), wherein the grounding conductor (7) has an oval configuration (Fig 2).

However, Champeau doesn't necessarily disclose the electrifiable conductor or the return conductor having an oval shape (claim 29).

Scheiber teaches a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34).

Specifically, Scheiber teaches a cable (10) comprising at least one electrifiable conductor (60), and first and second return conductors (top and bottom 74), and a grounding conductor (104), wherein the interior components of the cable may have any shape such as an oval shape (Col 6, lines 48-55).

With respect to claim 29, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the oval shaped conductor configuration as taught by Scheiber because Scheiber teaches that such a configuration provides a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34) and since it has been held that a change in form cannot sustain patentability where involved is only extended application of obvious attributes from a prior art. *In re Span-Deck Inc. vs. Fab-Con Inc. (CA 8, 1982) 215 USPQ 835.*

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oppenberg (Pat Num 5,003,273) in view of Parker et al (Pat Num 5,554,825, herein referred to as Parker). Oppenberg discloses a transmission cable (Figs 1-3) comprising

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signal and power conductors, which minimize crosstalk and are cheaper in cost (Col 2, lines 29-35).

However, Oppenberg doesn't necessarily disclose an adhesive for bonding adjacent insulating layer and the conductors of the electrical cable (claim 17).

Parker teaches a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35). Specifically, Parker discloses a cable (Fig 1) comprising at least one electrifiable conductor (2), being surrounded by a pair of insulating layers (3), and a flat flexible shield layer (7), wherein adhesive is utilized for bonding adjacent insulating layer (3) and the conductors (2 & top and bottom 7) of the electrical cable (1, Col 2, lines 58-63).

With respect to claim 17, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Oppenberg to utilize adhesive for bonding adjacent layers as taught by Parker because Parker teaches that such a configuration provides a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35).

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are Schilson et al (Pat Num 6,841,735), Sexton (Pat Num 6,492,595), Rimmer (Pat Num 6,320,133), Noorily (Pat Num 4,616,102), Shephard (Pat

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Num 4,652,772), Coon (Pat Num 4,658,090), Gordon (Pat Num 3m547,718), Kuo (Pat Num 4,219,928), Kobayashi et al (Pat Num 5,136,123), and Rimmer (Pat Num 6,218,622), all of which disclose various flat cables.

### ***Communication***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (571)-272-1978. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William H. Mayo III  
Primary Examiner  
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